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# XILOG

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The Microcomputer Masazine for VZ200, VZ300 and AQUARIUS users.

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## FROM THE MAILBAG

VZ User of Stoke, Nelson asks -
How come the program enclosed dosen't work ?

```
0 POKE 30969,54 :Poke 30970,124   -raise ramtop & reserve space
5  POKE  31672,33  :POKE  31673,0  :POKE  31674,64    -LD  HL,64
frequency
10 POKE 31675,1 :POKE 31676,0 :POKE31677,75   -LD BC,75 length
15 POKE 31678,205 :POKE 31679,92 :POKE31680,52   -CALL 345C hex
20 POKE 31681,201   -Return to basic
25 P=31672 :POKE 30863,INT(P/256) :POKE 30862,P-(256*INT(P/256))
  -put address into machine code pointers
30X=USR(X)   -execute machine code
```

The machine program is taken from the VZ200 Technical Manual, page 19.

This program is supposed to make a sound when called by the USR command. As often the case, machine code programs either work the way they're supposed to - OR they lock up the computer - OR somethins equally usaless. Machine code programs are unforgiving, unlike Basic, which at worst will simply not give the desired result.

So, Lesson 1:-
If you're using someone elses program you can be reasonably sure that it can work.

Lesson 2:-
If when you run it, it doesn't work, then YOU have done somethins wrong resardless of whether it looks right or not; so keep trying - practise and trial and error will, eventually set it going.

Lesson 3:-
Each time you finally suceed you sain confidence and can try more complicated programs and set them running more quickly.

In reply to our Nelso user.

Line 0 This is not a valid method o reservins memory space. Re-read your manual fo this or more simply us the protected memory o the Hi-res graphics which remains unused i normal text mode. i.e. memory 29184 to 30719.

Line 5 '0' and '64' must be transposed. Th Low byte first followe by the High byte.

→

Material intended for "Xilog" should be submitted either on Tape (several copies preferably) or be Typed and be accompanied by adequate explanatory notes including senders name and address. Material submitted to "Xilog" becomes the property of the VZ/AQUARIUS Users Group and may be treated at the editors discretion.
Contributions without reward to - Xilog, 22 Ussher Place, Pakuranga, Auckland. ph AK 562-166

→ Line 10 '0' and '75' must be transposed for the same reason as above.

Lines 15 to 30 No errors.
The working program is therefore as follows. →

```
5 POKE29184,33:POKE29185,64:POKE29186,0
10 POKE29187,1:POKE29188,75:POKE29189,0
15 POKE29190,205:POKE29191,92:POKE29192,52
20 POKE29193,201
25 POKE30862,0:POKE30863,114
30 X=USR(X)
60 GOTO30
```

OR THE GENERAL METHOD, WHERE ONLY THE DATA NUMBERS NEED TO BE CHANGED TO WRITE A NEW PROGRAM.

```
100 X=29184:Y=30862
200 READ A:IFA=500THEN600 ELSEPOKE X,A :X=X+1 :GOTO2
600 POKEY,0:POKEY+1,114
1000 DATA 33,64,0,1,75,0,205,92,52,201,500
1100 X=USR(U)
```

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## I. SPARGO, TAURANGA
## 'IT JUST COMES UP IN DOTS AND LINES... WHAT'S WRONG?'

AN INTERESTING LITTLE PROGRAM CALLED "PYRAMID". UNFORTUNATELY IT DOESN'T SEEM TO WORK QUITE RIGHT.DOES ANY READER KNOW WHATS WRONG?

```
10 CLS:INPUT"PYRAMID HEIGHT";H
20 INPUT"LENGHT OF BASE";B
30 D=B/2
40 IFB<10ORB>63ORH<0ORH>60THEN10
60 CLS:MODE(1):COLOR6,1
70 DL=(63-B)+(B/2.5)
75 DU=60-H:DM=63-B
80 DX=60-INT(H/2.5)
90 Y1=DU:X1=DL:Y2=60:X2=63+D:GOSUB1000
100 DX=60-INT(H/2.5)
110 Y1=60:X1=DM:GOSUB1000
130 FORZ=Y1TO60:SET(X1,Z)
140 SET(X2,Z):NEXTZ
150 X2=DL:Y1=60:Y2=DU:GOSUB1000
160 Y1=DX:GOSUB1000
170 X1=63+D:GOSUB1000
180 COLOR7,1
190 DN=63+B/2:DK=(63+B/2)-(B/2.5)
200 X2=DK:X1=DN:GOSUB1000
210 X1=63-B:GOSUB1000
220 Y1=60:GOSUB1000
240 X1=DN:GOSUB1000
250 FORZ=1TO5000:NEXTZ
260 INPUT"AGAIN";A$
270 IFLEFT$(A$,1)="Y"THEN10
280 END
1000 S=1:IFX1>X2ANDY1>Y2THENS=-1
1010 SET(X1,Y1):SET(X2,Y2)
1015 Y=Y1:N=1:IFY1=Y2THENA1=0:GOTO1030
1020 A1=(X2-X1)/(Y2-Y1):IFS=-1THENA1=-A1
1030 FORX=X1TOX2STEPS
1040 IFX<0THENX=0
1050 IFY<0THENY=0
1060 SET(X,Y):N=N+1
1070 IFA1<>0THENY=Y1+N/A1
1080 NEXTX:RETURN
```


## SOFTWARE FOR SALE

EXTENDED BASIC $25 ea.
adds 25 commands to your VZ200, including, Merge and Renumber.
Available from -
J.RAMSDEN
9 COWLEY DR.,
TEMPLE VIEW
HAMILTON.
ph 77987


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# AQUARIUS SOFTWARE REVIEW

AQUARIUS SOFTWARE REVIEW

One point I must mention at the start is that in order to load any cassette software into the 'Aquarius' the standard cassette interface is required. This is not included in the $179 price tag but costs an aditional $7.95 .

I found the instructions on loading cassette software in the computer's manual unclear and hard to follow. The instructions included on the cassette inserts however were of a much better standard.

INVADERS The instructions for playing this game were as a separate programme on the cassette which seemed slow to load and made 'a lot of fuss over nothing'.. The instructions programme however had very good error trapping and displayed good sound effects.

When loading the programmes the cassette must be stopped as each part loads which tends to slow the loading time of the whole thing.

Next up on the tape appeared the machine code loader programme and then , of course the actual block of code.

The game ran automatically once loaded and the title screen appeared. As I set out playing INVADERS the first thing that struck me was the clarity and steadiness of the display , something which is only usually found on more expensive machines or, dare I say it, games machines.

The graphics used struck me as a little strange looking, especially that of the actual invaders . I would imagine the picture overall would appeal to young children.

The invaders moved very slowly across the screen but each time they reached the edge they took a big jump down which meant that there was not much time before they were at the bottom of the screen invading.

When bombed by the aliens an intresting screen effect ocurred however the sound was disappointing.

My overall impression of the game was that it compared very favourably with the VC equivalent and that it made a good job of imitating the original.

PROGRAMME : INVADERS
AUTHOR : DUBIOS & MC NA MARA
MACHINE : AQUARIUS
MEMORY : 2K
RATING : 15/20

**********

GHOST HUNTER The instruction for this game were again in programme form and followed the same format as for INVADERS. It would have been nice to have had a bit of a change.

After the instructions have loaded the maze is loaded and appears on the screen while the actual game section is loading. Once the game has actually loaded it prompts for s to be pressed to start.

Again the pictur quality and steadines impressed me even thoug the graphics were a lo chunkier than fo INVADERS. I found th sound effects boring an monotinous which put m off a bit.

This programme ha all the features , if no the brilliant sound, o the original by ATARI.

PROGRAMME : GHOST HUNTERS
AUTHOR : DUBIOS & M NAMARA
MACHINE : AQUARIUS
MEMORY : 2K
RATING : 13/20

**********

The other tapes supplie were 'GAMES PACK 1' 'GAMES PACK 2'. These ar compilation tape featuring 4 programmes o each cassette and eac cassette costing 12.95

I won't go into an detail about th programmes except to sa that they are not nearl as good quality as th two programmes mentione above. If you are afte quantity rather tha quality then these ar the tapes to buy.

Games Packs one an three are produced i England by ADD O ELECTRONICS. Ghos Hunters and Invaders ar produced and distribute bt DICK SMITH ELECTRONIC PTY LTD.

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# MACHINE CODE FOR BEGINNERS

I will use the sound program discussed in reply to our Nelson users request in the following discussion.
The program contained only three lines-

LD HL,75
LD BC,64
CALL 3450 Hex

Each line is a symbolic (shorthand) representation of an instruction that the microprocessor is to carry out.
In English longhand the first line simply says - Load the register pair HL with the value 75.
LD BC,56 similarly says, load the BC pair of registers with the value of 64.
CALL 3450 H says, call up another bit of program located at address 3450 Hex.

Now anyone with a bit of knowledge about BASIC knows that the only thing you can do to a byte of memory is store an 8 bit number in it. i.e. a number between 0 and 255 and from BASIC you do this by POKEing. e.g. to store the number 153 at location 29200 you type in POKE 29200,153 - Bingo.
So, how do we get this LD HL,75 etc, into memory?
Well firstly if you don't have a machine code Editor/Assembler program ( Dick Smith calls these) then you will need a list of Z80 OP codes and a Hex to decimal conversion chart.

If you look up the table LD HL,(with a number) will be found to have a hex value of 21, and making up the

| | | |
|---|---|---|
| [illegible] | LD | HL,(nn) |
| 218405 | LD | HL,nn * |
| [illegible] | LD | A |

conversion table, this equates to decimal 33.
* LD BC,(with a number)= hex 01= 1 decimal
* CALL(an address) = hex CD =205 decimal.

Now each of these instructions, LD HL,LD BC, and CALL require two further bytes for the processor to do what its supposed to do. The first is the low byte, the second the high byte. In LD HL,75; 75 is the low byte and 0 is the high byte. Similarly with LD BC,64; 64, the low byte and 0, the high byte.
As for CALL 3450 Hex, 34 is the high byte = 52 decimal and 50 the low byte = 92 decimal. (use conversion table to check)
That's it, so just poke these 9 numbers into memory somewhere ; poke 2 more numbers into locations 30862 and 30863 to tell the USR command where you've put these instructions and execute the USR command.
UH OH ! It goes BEEP and then gets stuffed up

! This is because forgot to tell t processor what to after it completed t CALL instruction. RETU or RET as it's kno will set us back to t Basic program; sin that was where started. RET's co number is 201. A that's it, that's how make the VZ go BEEP machine code.

NOW IT IS YOUR TURN How do you make the write 'HI' on your monitor using machi code - Refer Technic Manual page 17.
The answer is giv below for those who fa !
Finally the Messa output subroutine al from page 17 - See you can figure this o out. Answer in the Ne edition of XILOG.
Good Luck, ED.

```
100 X=USR(X)
105 DATA500
000 DATA62,72,205,58,3,62,73,205,58,3,62,18,205,58,3,201
00 POKEY,0:POKEY+1,114
00 READA:IFA=500THEN600ELSEPOKEX,A:X=X+1:GOTO200
00 X=29184:Y=30862
```

## HERE ARE

THE INVERSE CHARACTERS FROM LAST MONTHS LISTING OF 'MOTORSPORT'

| | | | |
|---|---|---|---|
| 1102 | CRASH | | |
| 1127 | A COMPLETE WRITE OFF THAT WHEEL | | |
| 1128 | GAME OVER | | |
| 1240 | FALSE | | |
| 1250 | START | | |
| 2302 | DRIVER | | |
| 3094 | R | 3695 | MOTORSPORT |
| 3095 | E | 3801 | SELECT |
| 3490 | PAUSE ON | 3806 | CAR CONTROLS |
| 3520 | GET READY | 3812 | STARTERS FLAG |